Fragmentation & centralization
Beyond “free” and “closed”

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The 'splinternet' is already here
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The Splinternet Is Growing

By Jeff John Roberts  May 29, 2019
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Future of the Internet Initiative White Paper

Internet Fragmentation: An Overview
What *is* Internet fragmentation?
The intuitive picture

The supposedly “global” Internet is becoming increasingly different in different countries.
The intuitive picture

The supposedly “global” Internet is becoming increasingly different in different countries.

Consequences for...

- freedom of speech
- investment/technological development
- political relations (more on this later...)
**Finding #1:** The Internet is multi-polar.

**So what?** Internet fragmentation is much more complex than “free/global” vs “closed/siloed.”
What about content blocking?

So what? The internet reflects (and likely shapes) geopolitical relationships.
But not everyone’s ‘say’ in internet governance is equal, right...?
“Control points”

SSL certificates  web hosting  proxy services  domain name servers  data centers  top-level domains

Merrill, Pulse Centralization Dashboard, Internet Society.
The proportion of core internet services provided by U.S.-based companies by market share.

- SSL certificates: 96.4%
- Web hosting: 48.7%
- Proxy services: 97.6%
- Domain name servers: 69.2%
- Data centers: 59%
- Top-level domains: 66.3%

Merrill, Pulse Centralization Dashboard, Internet Society.
The proportion of core internet services provided by U.S.-based companies by marketshare.

Merrill, Pulse Centralization Dashboard, Internet Society.
This domain name has been seized by ICE - Homeland Security Investigations, pursuant to a seizure warrant issued by a United States District Court under the authority of 18 U.S.C. §§ 981 and 2323.

Willful copyright infringement is a federal crime that carries penalties for first time offenders of up to five years in federal prison, a $250,000 fine, forfeiture and restitution (17 U.S.C § 506, 18 U.S.C. § 2319). Intentionally and knowingly trafficking in counterfeit goods is a federal crime that carries penalties for first time offenders of up to ten years in federal prison, a $2,000,000 fine, forfeiture and restitution (18 U.S.C. § 2320).

Karen Kopel. Operation seizing our sites: How the federal government is taking domain names without prior notice. 2013.
The proportion of core internet services provided by U.S.-based companies by market share.

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Merrill, Pulse Centralization Dashboard, Internet Society.
One more step
Please complete the security check to access www.dawn.com

Matthew Prince. The Trouble with Tor. 2016.
Finding #3: U.S. organizations effectively control the global internet.

So what? Internet fragmentation not a response to a global internet; it’s a response to a U.S.-controlled internet.
What now?

- The internet *reflects* (and likely goes on to *shape*) political realities.

- Discussions about the internet, and what to do with it are intrinsically political decisions

- If we want to change the distribution of power on the internet, we must first understand the **political economy of the internet**---including state and non-state actors.
Political economy question #1

How does the market for core internet services “fit together”?

→ Who is the customer for technologies that may introduce a modicum of decentralization (like Shenker et al.’s Interedge)? What are their (commercial) incentives to adopt these technologies?

→ What is the nature of the commercial relationships between CDNs and telecoms? (Particularly telecoms that own content delivery platforms, like AT&T/HBO MAX?)